

## CLAIMS

1. A power magnetic core, having a start section (15) and a termination section (16), formed therein with lines of magnetic force (20) extending from said start section (15) toward said termination section (16), comprising:

5            a first portion (17), having a permeability  $\mu_a$ , disposed on the shortest magnetic path of said lines of magnetic force (20) connecting said start section (15) and said termination section (16) with each other; and

10            a second portion (18), having a permeability  $\mu_b$  greater than said  $\mu_a$ , disposed apart from the shortest magnetic path of said lines of magnetic force (20).

2. The power magnetic core according to claim 1, wherein

15            said first portion (17) contains soft magnetic powder having a relatively small average particle diameter, and said second portion (18) contains soft magnetic powder having a relatively large average particle diameter.

3. The power magnetic core according to claim 1, wherein

20            said first portion (17) contains iron powder, and said second portion (18) contains at least either Permalloy powder or Sendust powder.

4. A stator core prepared by employing the power magnetic core according to claim 1, comprising:

25            an annularly extending yoke portion (11);

              a first teeth portion (12m) protruding from said yoke portion (11) in the radial direction of said yoke portion (11) so that said start section (15) is disposed on the protruding forward end; and

              a second teeth portion (12n), protruding from said yoke portion (11) in the radial direction of said yoke portion (11) so that said termination section (16) is disposed on

the protruding forward end, adjacent to said first teeth portion (12m) at an interval, wherein

5        a slot portion (14) is defined in a space enclosed with said first and second teeth portions (12m, 12n) and said yoke portion (11), said first portion (17) extends along said slot portion (14), and said second portion (18) extends on the opposite side of said slot portion (14) with respect to said first portion (17).

10      5. A power magnetic core, having a start section (15) and a termination section (16), formed therein with lines of magnetic force extending in a prescribed direction from said start section (15) toward said termination section (16), comprising:

15      a plurality of flat soft magnetic particles (51), each including a major axis (52) and a minor axis (53), bonded to each other, wherein

15      each of said plurality of soft magnetic particles (51) is so bonded that the extensional direction of said major axis (52) and the extensional direction of said lines of magnetic force substantially coincide with each other.

6. A stator core prepared by employing the power magnetic core according to claim 5, comprising:

20      an annularly extending yoke portion (11); and  
20      a plurality of teeth portions (12), protruding from said yoke portion (11) in the radial direction of said yoke portion (11), provided at intervals from each other, wherein  
25      each of said plurality of soft magnetic particles (51) forming said yoke portion (11) is so bonded that the extensional direction of said major axis (52) and the extensional circumferential direction of said yoke portion (11) substantially coincide with each other, and

25      each of said plurality of soft magnetic particles (51) forming said teeth portions (12) is so bonded that the extensional direction of said major axis (52) and the radial direction of said yoke portion (11) substantially coincide with each other.

7. The stator core according to claim 6, wherein  
said teeth portions (12) include forward end portions (19) disposed on the  
protruding forward ends of said teeth portions (12) to face a separately provided rotor  
core (2), and

5           said forward end portions (19) are formed by a plurality of spherical soft  
magnetic particles (61) bonded to each other.

8. The stator core according to claim 6, wherein  
10          a slot portion (14) is defined in a space enclosed with two adjacent said teeth  
portions (12) and said yoke portion (11), and  
              said yoke portion (11) and said plurality of teeth portions (12) include a first  
portion (17) extending along said slot portion (14) and having a permeability  $\mu_a$  and a  
second portion (18) extending on the opposite side of said slot portion (14) with respect  
15          to said first portion (17) and having a permeability  $\mu_b$  greater than said  $\mu_a$ .

9. The stator core according to claim 8, wherein  
the average length of said major axis (52) is relatively small in said plurality of  
flat soft magnetic particles (51p) forming said first portion (17), and the average length  
20          of said major axis (52) is relatively large in said plurality of flat soft magnetic particles  
(51q) forming said second portion (18).